

**IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE
BEFORE THE EXAMINING CORPS**

**IN RE APPLICATION OF
BERNARD DOYLE**

AND

SALLIE MAYNARD

**FOR A
SHOWER HEAD FOR SELECTIVELY
ADDING LIQUID SOAP TO
SHOWER WATER**

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BACKGROUND OF THE INVENTION

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Field of the Invention:

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The present invention relates to a shower head. More particularly, the present invention relates to a shower head for selectively adding liquid soap to shower water.

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Description of the Prior Art:

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Numerous innovations for a shower head for selectively adding liquid soap to shower water have been provided in the prior art that will be described. Even though these innovations may be suitable for the specific individual purposes to which they address, however, they differ from the present invention.

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FOR EXAMPLE, U.S. Patent Number 3,764,074 to James teaches a shower head and liquid agent dispensing attachment that includes valving apparatus which interconnects a source of pressurized liquid and spray dispenser having single control positionable from one extreme, at which just the pressurized liquid is provided, to another extreme at which a mixture of the first liquid and liquid agent are provided, the liquid agent container also being interconnected with the valving apparatus.

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ANOTHER EXAMPLE, U.S. Patent Number 4,121,773 to Headen teaches a shower head dispenser for bath oil and the like which includes a body member with an axial bore adapted for insertion between a shower line and a shower head. The body member has two longitudinally spaced apertures in its side wall which

1 communicate between the bore and a detachable oil container. A plug is rotatably
2 mounted in the bore of the body. It has an axial venturi bore therethrough, and a pair
3 of transverse bores, one of which intercepts the axial bore at the venturi throat, and
4 the other of which intercepts the axial bore upstream of the throat. The transverse
5 bores of the plug are registrable with the apertures of the body upon rotation of the
6 plug. When water passes through the venturi bore of the plug with the transverse
7 bores aligned with the apertures, the greater pressure at the upstream bore and
8 aperture forces oil out of the container through the downstream bore and aperture
9 into the venturi throat, where it mixes with water enroute to the shower head.

10 **STILL ANOTHER EXAMPLE**, U.S. Patent Number 4,193,520 to Duffield
11 teaches a device for adding liquid soap to shower water. Liquid soap is drawn
12 through a tube member by harnessing the negative pressure in a sleeve member,
13 situated within a water source leading to a shower nozzle, relative to the atmosphere.
14 Means for controlling the volume of soap flowing through a tube member adjusts the
15 amount of soap going through the shower head.

16 **YET ANOTHER EXAMPLE**, U.S. Patent Number 4,651,930 to Magaha, Jr.
17 teaches a shower head attachment that has a liquid detergent reservoir and
18 facilitates a "soap," "rinse," and "off" cycle. The attachment has a body provided with
19 a rotary valve having a transverse port. The port is alined, selectively, with a first or
20 second longitudinal inclined passageway formed in the body forwardly of the valve.
21 A third passageway of critical internal diameter communicates the first passageway
22 with an opening formed in a depending neck on the body and acts as an aspirating
23 passageway. A sleeve is secured within the opening and carries a depending feed

1 tube. The feed tube extends into a reservoir or bottle of liquid detergent that is
2 removably mounted on the depending neck of the body, externally of the sleeve. The
3 sleeve has a valve seat above the feed tube, and a ball check valve is seated on the
4 valve seat. The valve carries an external handle; and the ends of the handle carry
5 depending cables, the ends of which are provided with respective tabs. A pin on the
6 body is received in an arcuate slot in the handle to limit the rotary movement of the
7 handle and valve. The liquid detergent is biodegradable and cooperates with the
8 aspirating passageway to prevent clogging. It is critical that the liquid detergent has
9 the proper viscosity relative to the internal diameter of the aspirating passageway so
10 that the detergent is aspirated out of the bottle and into the shower head attachment
11 at the desired rate.

12 **STILL YET ANOTHER EXAMPLE**, U.S. Patent Number 5,071,070 to Hardy
13 teaches an apparatus to selectively introduce a fluid from one of a plurality of
14 containers into a stream of water flowing through a shower head. The apparatus
15 comprises a housing, a main water passageway therethrough, a plurality of bottles
16 containing fluid to be fed therefrom, supplemental passageways coupling the bottles
17 and the main water passageway whereby fluid from the container may flow to the
18 main passageway by venturi forces created by flowing water, a valve mechanism
19 means movable between open and closed positions by the venturi forces to allow or
20 preclude the feeding of fluid to the flow of water, and user controlled means to
21 selectively allow the valve mechanism to be coupled with the venturi force. Also
22 disclosed is the method for selectively introducing a fluid from a container into a
23 stream of water flowing through a shower head by venturi forces of the flowing water.

1 **YET STILL ANOTHER EXAMPLE**, U.S. Patent Number 5,356,076 to Bishop
2 teaches a soap dispenser for use with liquid soaps, primarily in showers, that has a
3 unique multi-position valve, and separate mixing and air entraining controls. Liquid
4 soap stored in a reservoir is drawn into a flowing water stream by siphonic action.
5 The amount of soap/air mixture is regulated by a mixture valve. Air in controllable
6 proportions is added by an air entrainment valve. The proportion of air with respect
7 to the soap is adjustable. Simultaneous control of the amount of soap/air mixed with
8 the flowing water stream is controlled by a unique mixture valve geometry.

9 It is apparent that numerous innovations for a shower head for selectively
10 adding liquid soap to shower water have been provided in the prior art that are
11 adapted to be used. Furthermore, even though these innovations may be suitable
12 for the specific individual purposes to which they address, however, they would not
13 be suitable for the purposes of the present invention as heretofore described.

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SUMMARY OF THE INVENTION

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ACCORDINGLY, AN OBJECT of the present invention is to provide a shower head for selectively adding liquid soap to shower water that avoids the disadvantages of the prior art.

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ANOTHER OBJECT of the present invention is to provide a shower head for selectively adding liquid soap to shower water that is simple to use.

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BRIEFLY STATED, STILL ANOTHER OBJECT of the present invention is to provide a shower head for selectively adding liquid soap to shower water. A partition contained in the nozzle defines first and second chambers contained in the nozzle. A reservoir contained in the nozzle holds the liquid soap therein and fluidly communicates with the second chamber. An apparatus contained in the nozzle selectively directs water from a water source into either the first chamber where it exists the nozzle as the shower water or into the second chamber where by creating a negative pressure due to its flow draws down the liquid soap from the reservoir to mix therewith and exit the nozzle as soapy shower water.

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The novel features which are considered characteristic of the present invention are set forth in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of the specific embodiments when read and understood in connection with the accompanying drawing.

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BRIEF DESCRIPTION OF THE DRAWINGS

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The figures of the drawings are briefly described as follows:

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FIGURE 1 is a diagrammatic perspective view of the shower head of the present invention;

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FIGURE 2 is a diagrammatic cross sectional view taken along **LINE 2-2** in **FIGURE 1** of the shower head of the present invention in the shower water only mode; and

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FIGURE 3 is a diagrammatic cross sectional view taken along **LINE 3-3** in **FIGURE 1** of the shower head of the present invention in the combined shower water and liquid soap mode.

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1 **LIST OF REFERENCE NUMERALS UTILIZED IN THE DRAWINGS**

- 2 **10** shower head of present invention for selectively adding liquid soap **12** to
3 shower water **14**
4 **12** liquid soap
5 **14** shower water
6 **16** nozzle
7 **18** reservoir contained in nozzle **16** for holding liquid soap **12**
8 **20** partition contained in nozzle **16**
9 **22** apparatus contained in nozzle **16** for selectively directing water **28** from water
10 source **30** into either first chamber **24** contained in nozzle **18** where it exists
11 nozzle **16** as shower water **14** or into second chamber **26** contained in nozzle
12 **16** where by creating negative pressure due to its flow draws down liquid soap
13 **12** from reservoir **18** contained in nozzle **16** to mix therewith and exit nozzle
14 **16** as soapy shower water **32**
15 **24** first chamber contained in nozzle **16**
16 **26** second chamber contained in nozzle **16**
17 **28** water from water source **30**
18 **30** water source
19 **32** soapy shower water
20 **34** forwardmost wall of nozzle **16**
21 **36** uppermost wall of nozzle **16**
22 **38** rearwardmost wall of nozzle **16**

- 1 **40** outlet of nozzle **16**
- 2 **42** floor defining reservoir **18** contained in nozzle **16**
- 3 **43** plug of reservoir **18** contained in nozzle **16** for allowing reservoir **18** contained
- 4 in nozzle **16** to be filled with liquid soap **12**
- 5 **44** perforations in floor **42** defining reservoir **18** contained in nozzle **16** for
- 6 allowing liquid soap **12** to leave reservoir **18** contained in nozzle **16** and enter
- 7 second chamber **26** contained in nozzle **16**
- 8 **46** soapy shower water
- 9 **48** conduit contained in nozzle **16**
- 10 **50** terminal end of floor **42** defining reservoir **18** contained in nozzle **16**
- 11 **52** door of apparatus **22**
- 12 **54** pivot pin of door **52** of apparatus **22**
- 13 **56** terminal end of pivot pin **54** of apparatus **22**
- 14 **58** knob of apparatus **22**
- 15 **60** handle

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DETAILED DESCRIPTION OF THE INVENTION

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Referring now to the figures, in which like numerals indicate like parts, and particularly to **FIGURE 1**, which is a diagrammatic perspective view of the shower head of the present invention, the shower head of the present invention is shown generally at **10** for selectively adding liquid soap **12** to shower water **14**.

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The configuration of the shower head **10** can best be seen in **FIGURE 2** and in **FIGURE 3**, which are, respectively, a diagrammatic cross sectional view taken along **LINE 2-2** in **FIGURE 1** of the shower head of the present invention in the shower water only mode, and a diagrammatic cross sectional view taken along **LINE 3-3** in **FIGURE 1** of the shower head of the present invention in the combined shower water and liquid soap mode, and as such, will be discussed with reference thereto.

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The shower head **10** comprises a nozzle **16**, a reservoir **18**, a partition **20**, and an apparatus **22**. The partition **20** is contained in the nozzle **16** and defines a first chamber **24** and a second chamber **26** in the nozzle **16**. The reservoir **18** is contained in the nozzle **16**, is for holding the liquid soap **12** therein, and fluidly communicates with the second chamber **26** contained in the nozzle **16**. The apparatus **20** is contained in the nozzle **16** and is for selectively directing water **28** from a water source **30** into either the first chamber **24** contained in the nozzle **18** where it exists the nozzle **16** as the shower water **14** (**FIG. 2**) or into the second chamber **26** contained in the nozzle **16** where by creating negative pressure due to its flow draws down the liquid soap **12** from the reservoir **18** contained in the nozzle **16** to mix therewith and exit the nozzle **16** as soapy shower water **32** (**FIG. 3**).

1 The nozzle **16** has a forwardmost wall **34**, an uppermost wall **36**, a
2 rearwardmost wall **38**, and an outlet **40**.

3 The reservoir **18** contained in the nozzle **16** is defined by a floor **42**. The floor
4 **42** defining the reservoir **18** contained in the nozzle **16** extends rearwardly and
5 upwardly from the forwardmost wall **34** of the nozzle **16** to the uppermost wall **36** of
6 the nozzle **16**.

7 The reservoir **18** contained in the nozzle **16** has a plug **43**. The plug **43** of the
8 reservoir **18** contained in the nozzle **16** is disposed at the forwardmost wall **34** of the
9 nozzle **16**, and when removed is for allowing the reservoir **18** contained in the nozzle
10 **16** to be filled with the liquid soap **12**.

11 The floor **42** defining the reservoir **18** contained in the nozzle **16** has
12 perforations **44**. The perforations **44** in the floor **42** defining the reservoir **18**
13 contained in the nozzle **16** allow the reservoir **18** contained in the nozzle **16** to fluidly
14 communicate with the second chamber **26** contained in the nozzle **16** and for
15 allowing the liquid soap **12** to leave the reservoir **18** contained in the nozzle **16**, enter
16 the second chamber **26** contained in the nozzle **16**, mix with the water **28** of the
17 water source **30**, and exit the nozzle **16** as the soapy shower water **32** when the
18 water **28** of the water source **30** is directed by the apparatus **22** into the second
19 chamber **26** contained in the nozzle **16** and creates the negative pressure due to its
20 flow that draws down the liquid soap **12** from the reservoir **18** contained in the nozzle
21 **16** into the second chamber **26** contained in the nozzle **16**.

1 The partition **20** contained in the nozzle **16** extends upwardly from
2 engagement with the outlet **40** of the nozzle **16** to below the floor **42** defining the
3 reservoir **18** contained in the nozzle **16** so as to form a conduit **48** therebetween, and
4 then extends rearwardly therefrom still below the floor **42** defining the reservoir **18**
5 contained in the nozzle **16** to between the uppermost wall **36** of the nozzle **16** and the
6 rearwardmost wall **38** of the nozzle **16** where it terminates in a terminal end **50**.

7 The apparatus **22** comprises a door **52**. The door **52** of the apparatus **22** is
8 pivotally attached by a pivot pin **54** to the terminal end **50** of the partition **20**
9 contained in the nozzle **16**.

10 The door **52** of the apparatus **22** sweeps from a first position of engagement
11 with the uppermost wall **36** of the nozzle **16** where it closes the conduit **48** contained
12 in the nozzle **16** preventing the water **28** from the water source **30** from entering the
13 second chamber **26** contained in the nozzle **16** and mixing with the liquid soap **12**
14 while simultaneously opening communication of the water **28** from the water source
15 **30** with the first chamber **24** contained in the nozzle **16** so as to allow only the shower
16 water **14** to exit the outlet **40** of the nozzle **16** (**FIG. 2**), to a second position of
17 engagement with the rearwardmost wall **38** of the nozzle **16** where it closes
18 communication of the water **28** from the water source **30** with the first chamber **24**
19 contained in the nozzle **16** while simultaneously opening the conduit **48** contained in
20 the nozzle **16** allowing the water **28** from the water source **30** to enter the second
21 chamber **26** contained in the nozzle **16** and mix with the liquid soap **12** by creating
22 the negative pressure that draws down the liquid soap **12** from the reservoir **18**

1 contained in the nozzle **16** thereinto so as to allow only the soapy shower water **32** to
2 exit the outlet **40** of the nozzle **16** (**FIG. 3**).

3 The pivot pin **54** of the apparatus **22** extends through the nozzle **16** to a
4 terminal end **56** (**FIG. 1**).

5 The apparatus **22** further comprises a knob **58** (**FIG. 1**). The knob **58** of the
6 apparatus **22** engages, and rotates with, the terminal end **56** of the pivot pin **54** of the
7 apparatus **22** so as to selectively move the door **52** of the apparatus **22** between its
8 first and second positions.

9 The shower head **10** further comprises a handle **60**. The handle **60** extends
10 from, and is in fluid communication with, the nozzle **16**.

11 It will be understood that each of the elements described above, or two or
12 more together, may also find a useful application in other types of constructions
13 differing from the types described above.

14 While the invention has been illustrated and described as embodied in a
15 shower head for selectively adding liquid soap to shower water, however, it is not
16 limited to the details shown, since it will be understood that various omissions,
17 modifications, substitutions and changes in the forms and details of the assembly
18 illustrated and its operation can be made by those skilled in the art without departing
19 in any way from the spirit of the present invention.

1 Without further analysis, the foregoing will so fully reveal the gist of the present
2 invention that others can, by applying current knowledge, readily adapt it for various
3 applications without omitting features that, from the standpoint of prior art, fairly
4 constitute characteristics of the generic or specific aspects of this invention.